SOUTHEASTERN
REGIONAL
BIOMASS ENERGY
PROGRAM

SERBEP
Update

FEBRUARY 1998

A Publication for the General Biomass Community

The Southeastern Regional Biomass Energy Program is one of five regional biomass energy programs. It is administered for the U.S. Department of Energy Office of Energy, Efficiency, and Renewable Energy Programs, by the Tennessee Valley Authority's Environmental Research Center in Muscle Shoals, Alabama. The 13-state region includes Florida, Kentucky, Mississippi, Georgia, North Carolina, South Carolina, Virginia, West Virginia Missouri, Tennessee, Louisiana, Arkansas, Alabama, and Washington, D.C.

For More Information Contact:
Phillip Badger, Manager
(205) 386-3086
pcbadger@tva.gov

SERBEP fax:
(205) 386-2499

PLANT TO USE CORN STOVER

A new $150 million plant being built near Kearney, Nebraska, by Heartland Fibers will use corn stover to make paper pulp and provide feedstock to make furfural—a specialty chemical used in manufacturing plastics. Corn stover is the above-ground part of the corn plant except for the grain. Owners of the plant are currently waiting on permits and expect to start construction within 6 months and be in full operation by the fall of 1999. Heartland is a privately held company with the majority of its funding coming from individuals associated with agriculture and the paper industry.

Approximately 1300-1400 dry tons per day of corn stover will be processed in the plant which will operate year-round and produce 400 tons per day of pulp. Processing the stover generates 580 tons per day of pith and other organic materials that will be used to manufacture furfural. Originally it was envisioned that this material would be used as fuel for electricity production; however, the furfural market presented a higher value use.

Over 24 paper companies have evaluated the pulp and, according to Heartland, found the pulp equal to or better than North American hardwood pulps. It is expected that the pulp will be used in high quality writing papers including greeting card stock. Heartland says that the stover pulp does not require as much bleaching as tree based fibers and can be bleached without using chlorine—a distinct environmental advantage.

Heartland will hire custom operators to harvest 200,000 to 225,000 acres of stover per year within a 75-mile radius of the plant. Every three years 60 percent of the stover will be removed with the other 40 percent left in the field for environmental purposes. This amounts to about one-third of the farmers providing stover from about one-third of their acreage. Each acre is expected to yield about 2.5 tons of stover on fields that yield 160-200 bushels per acre of grain.

As a rule of thumb, corn grain at 25 percent moisture content (typical at harvest) will correlate to a stover moisture content of 50 percent. Stover will be stored at the plant and at participating farms. Only large square bales will be used.

Heartland is working with equipment manufacturers to make slight modifications to their equipment to provide high quality stover for processing into pulp. One modification is the addition of a screen along the bottom of a shredder-windrower to allow dirt and

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US CFR CD-ROM Update—All 50 US Code of Federal Regulations (CFR) are on an updated CD-ROM featuring 5,000 in-line graphics, PDF (page-for-page) format, and instant search/retrieval. You may obtain all 50 CFRs (updated quarterly) for $62.50 for a quarterly edition or $190 for an annual subscription (four quarterly issues). To order go to http://www.env-sol.com and use the online order form, or contact Solutions Software Corp., 1795 Turtle Hill Road, Enterprise, FL 32725, (407) 321-7912, fax (407) 321-3098, or email <solution@env-sol.com>

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Northern States Power Signs Biomass Contract with MNVAP—Northern States Power Co. (NSP) has signed a power purchase agreement with Minnesota Valley Alfalfa Producers (MNVAP) of Granite Falls, MN, to supply 75 megawatts of biomass generated electricity to the NSP system by late 2001. MNVAP will build a plant using integrated gasification combined cycle technology to be fueled with alfalfa stems. Once the power plant is operating, it will be the first dedicated crop-fuel plant of its size in the world. For more information contact NSP, 414 Nicollet Mall, Minneapolis, MN 55401-1993, (612) 330-5500.

fines to fall through. On some equipment wheel spacing is also being changed to accommodate corn row spacing.

Farmers will have 30-year contracts but will not receive direct remuneration for their stover. However, they will gain several benefits from stover removal. One benefit is that it will facilitate no-till planting which reduces the number of trips across a field and soil erosion. The use of no-till planting also reduces the weather impact on harvesting by providing firmer soil, thus increasing the window for harvesting. Harvest typically occurs over a 12-week period with the middle six weeks most intensive.

Studies have shown that fields which are no-till actually have more soil organic matter than those which are plowed. This increase occurs because the residue plowed under the previous year is re-exposed when plowing takes place the following year. This organic material is then oxidized and lost to the soil.

Soils on which 60% of the stover has been removed tend to have warmer soil temperatures in the spring, thus facilitating seed sprouting and seedling growth. If stover is present it can absorb any chemicals applied for weed control or other purposes, thus increasing the use of chemicals. Removal of stover also reduces places that disease or insects can winter-over to the next crop. Studies have shown that removal of 60 percent of the stover can reduce the presence of corn borer in the next crop by 70 percent.

Stover removal also eliminates the need for open field burning. Studies have shown that fields with stover removed provide better bird habitat for migrating sandhill cranes. The fields reduce injuries to bird wings and make the corn kernels more visible.

The processing plant will have a liquid wastewater stream and a black liquor stream. The black liquor will be gasified and the chemicals recovered. An anaerobic digester will be used to treat the wastewater. It is anticipated that this combination of systems will provide a significant portion of the plant's gas energy requirements.

Once the Kearney plant is operating, a second plant will be constructed east of Kearney, possibly in York, Nebraska, approximately 80 miles east of Kearney. Heartland officials feel that their technology will allow the construction of several more similar mini-mills across the US.

For more information, contact Heartland Fibers Plant 1, LLC, P.O. Box 2439, Kearney, Nebraska 68848, phone (308) 236-2166 and fax (308) 234-9359 and email <cornfiber@aol.com>.

REPORT FROM THE PRESIDENT'S COMMITTEE OF ADVISORS ON SCIENCE AND TECHNOLOGY (PCAST)

President Clinton established the President's Committee of Advisors on Science and Technology (PCAST) by Executive Order 12882 at the same time that he established the National Science and Technology Council (NSTC). The PCAST serves as the highest level private sector science and technology advisory group for the President and the NSTC. The Committee members are appointed by the President and are drawn from industry, education and research institutions, and other non-governmental organizations. *Federal Energy Research and Development for the Challenges of the 21st Century* is the final report, approved by PCAST, in response to the President's request for a review of the current national energy R&D portfolio.

The US faces major energy-related challenges as it enters the twenty-first century. Our economic well-being depends on reliable, affordable supplies of energy. Our environmental well-being requires a mix of energy sources that emits less carbon dioxide and other pollutants than today's mix does. Our national security requires secure supplies of oil or alternatives to it, as well as prevention of nuclear proliferation. And the challenges to the well-being of this country are made more acute by what is happening elsewhere in the world. The combination of population growth and eco-

nomic development in Asia, Africa, and Latin America is driving a rapid expansion of world energy use, which is beginning to augment the worldwide emissions of carbon dioxide from fossil fuel combustion, increasing pressure on world oil supplies, and exacerbating nuclear proliferation concerns. Improvements in energy technologies, attainable through research and development, are the key to the capacity of the US to address these challenges.

Many of the energy R&D programs of the Federal government, which are primarily conducted by the Department of Energy (DOE), have been well focused and effective within the limits of available funding. But these programs, taken as a whole, are not commensurate in scope and scale with the energy challenges and opportunities the twenty-first century will present. The inadequacy of current energy R&D is especially acute in relation to the challenge of responding prudently and cost-effectively to the risk of global climatic change from society's greenhouse-gas emissions, of which the most important is carbon dioxide from combustion of fossil fuels. Much of the new R&D needed to respond to this challenge would also be responsive to the other challenges.

The Panel recommends strengthening the DOE applied energy-technology R&D portfolio by increasing funding for four of its major elements: energy end-use efficiency, nuclear fission, nuclear fusion, and renewable energy technologies; and restructuring part of the fifth: fossil fuel technologies. The Panel also recommends better coordination between DOE's applied energy-technology programs and the fundamental research carried out in the program on Basic Energy Sciences; increased efforts in integrated analysis of its entire energy R&D portfolio and the leverage the portfolio offers against the energy challenges of the next century; targeted efforts to improve the prospects of commercialization of the fruits of publicly funded energy R&D in specific areas; increased attention to certain international aspects of energy R&D; and changes in the prominence given to energy R&D in relation to the Department's other missions, coupled with changes in how this R&D is managed.

The report recommends an increase, over a five-year period, of $1 billion in DOE's annual budget for applied energy-technology R&D. The largest shares would go to R&D in energy efficiency and renewable energy technologies, but nuclear fusion and fission would also receive increases. The composition of the R&D supported on advanced fossil-fuel technologies would change in favor of longer-term opportunities, including fuel cells and carbon-sequestration technologies, but the overall spending level for fossil-fuel technologies would stay roughly constant in real terms.

To increase the efficiency with which public dollars invested in energy R&D yield the results that the national interest requires, the Panel offers the following specific recommendations:

- Overall responsibility for the DOE energy R&D portfolio should be assigned to a single person reporting directly to the Secretary of Energy; similarly, a single individual should be given the responsibility and authority for coordination of crosscutting programs between the applied-technology programs, reporting to the single person responsible for the overall R&D portfolio.
- Industry/national-laboratory/university technical oversight committees should work with DOE to provide overall direction to energy R&D programs, with DOE facilitating and administering the process.
- All R&D programs should undergo outside technical peer review every 1 to 2 years, but interim internal process-oriented reviews should be reduced to a minimum.
- DOE staff technical skills should be strengthened by training, targeted hiring, and by systematically rotating external technical (and managerial) staff through DOE as senior professionals

Environmental Grantmaking Foundations 1997 Directory—This directory is a comprehensive guide to 750 of the most significant independent, community, and company-sponsored foundations that fund environmental projects. These foundations give over $425 million for environmental purposes annually. This brand new fifth edition profiles 200 members of the Environmental Grantmakers Association plus over 500 foundations that give environmental grants. The directory features officers, directors, and key personnel; environmental programs in depth; analyses drawn from TGS's unique database; and listings of recent grants. Indexes list foundations by recipient and activity region; environmental topics/activities; emphases and limitations; location; issues; and deadlines. To order, contact Resources for Global Sustainability, P.O. Box 22770, Rochester, NY 14692-2770, (800)-724-1857, (716) 473-3090, fax (716) 473-0968, email <rgs@eznet.net>. Federal ID is 16-1510766 and cost is $89. CD Rom version is $104. Shipping and handling to us destinations is $6 for first copy and $2 for additional copies. Canadian shipping/handling is $13 USD.

Energy Products of Idaho to Provide Energy System for Papermill in Italy—Energy Products of Idaho (EPI) has been selected to provide Italy's first fluidized bed waste-to-energy system converting paper sludge into usable energy. EPI is supplying the facility to Cartiere Burgo, the largest supplier of newsprint in Italy. TPL of Rome is the Engineering, Procurement, Construction (EPC) contractor and CCT of Milan is providing the boiler and pressure parts for the boiler island. New paper sludge from the mill and reclaimed paper sludge from an existing landfill power the EPI fluidized bed energy system. The energy system produces 46 million Btus per hour. Superheated steam from the process produces electricity in a steam turbine/generator set. For more information, contact Kent Pope, EPI, 4006 Industrial Ave., Coeur d'Alene, ID 83814-8928, phone (208) 765-1611, fax (208) 765-0503.

with significant responsibilities for all aspects of program management.

- Lead laboratories should be named and laboratories should be treated by DOE as integrated entities, not as collections of projects independently controlled from DOE headquarters.
- Industry/laboratory/university partnerships should conduct the energy R&D that is funded by DOE, in most cases.
- The national laboratories should be encouraged to perform work for clients other than DOE, inside and outside the government, as appropriate, and processes for doing this should be streamlined.
- DOE staff procedures for energy technology programs should be reviewed in detail, and staff levels adjusted accordingly.

The Panel believes that the Federal government, led by the President, also has an important educational role to play, and so the final recommendation states:

- We believe the President should increase his efforts to communicate clearly to the public the importance of energy and of energy R&D to the nation's future, and that he should clearly designate the Secretary of Energy as the national leader and coordinator for developing and carrying out a sensible national energy strategy, which of course includes not only energy R&D but much else.

For a copy of *Federal Energy Research and Development for the Challenges of the Twenty-First Century* (PCAST Energy Report), contact PCAST Executive Secretariat, phone (202) 456-6100, or fax (202) 456-6026. The report is also available on the PCAST Home Page via Link from the OSTP Home Page at http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html.

CHANGES IN THE SOUTHEASTERN REGIONAL BIOMASS ENERGY PROGRAM (SERBEP)

Recent organizational restructuring and past and present budget reductions by Congress for the Regional Programs and within the Tennessee Valley Authority (TVA), which administers the Southeastern Regional Biomass Energy Program (SERBEP) for the U.S. Department of Energy, have resulted in a few changes for our program. SERBEP has been transferred from the Biotechnology Department to the Atmospheric Sciences and Environmental Assessments Department. Our Assistant Program Administrator, David Stephenson, has been assigned to another department within TVA and no longer works for SERBEP. We also lost the partial services of several other staff members through retirement and reassignment. Over the last two years, SERBEP has lost 50% of its funding. The combination of staff and budget reductions, along with a physical move of our offices, caused us to be unable to publish a newsletter in January. In order to cut costs in the future, we plan to go to a bimonthly format for the *SERBEP Update*. Within these new parameters, we will continue to strive to maintain the high quality of our publication and provide you with timely and useful information. *(Please note that our new fax number is (205) 386-2499).*

NATIONAL SUMMARY REPORT ON STATE FINANCIAL INCENTIVES FOR RENEWABLE ENERGY

The past three decades have seen the rapid development of renewable energy technologies and the evolution of financial and regulatory incentives to augment that development at the state and federal levels. Financial incentives include corporate and personal income tax credits and deductions, sales and property tax exemptions, loans, grants, and industrial recruitment programs that include a variety of incentive tools. Regulatory incentives include integrated resource planning rules, net metering rules, green pricing programs, solar access laws, system benefits charges, contractor and equipment licensing rules, disclosure and certification, and line extension policies.

As state policy makers debate the most relevant methodology for promoting renewables, an important tool for guiding pol-

icy decisions is a database of those programs that exist throughout the country. The Interstate Renewable Energy Council's *Database of State Incentives for Renewable Energy* (DSIRE) catalogues and summarizes state and federal incentives for renewable energy. The project is funded by the Office of Utility Technologies, Office of Energy Management Division of the U.S. Department of Energy and is managed by the North Carolina Solar Center on behalf of the Interstate Renewable Energy Council. DSIRE currently includes two separate databases: the database of financial incentives and the database of regulatory incentives. This report, the *National Summary Report on State Financial Incentives for Renewable Energy*, summarizes all current state and federal financial incentives designed to promote alternative fuels, biomass, geothermal, hydropower, solar, waste, and wind energy sources. While this report serves as a snapshot of the state of renewables support through financial incentives, periodic revisions and additions to the database will maintain DSIRE's role as a clearinghouse of information on state incentives for renewable energy.

In addition to this printed format, the database is available as a computer application, *DSIRE on Disk*, from the North Carolina Solar Center and as an interactive website, *DSIRE on Line*, via the internet at http://www-solar.mck.ncsu.edu/dsire.hem. A companion volume to this report includes the statute text for financial incentives identified in this report. The statute text is also accessible from the DSIRE website.

NON-PETROLEUM GASOLINE SUBSTITUTE PATENT ISSUED TO PRINCETON UNIVERSITY

The L.L. Knickerbocker Co., Inc., which holds approximately 38 percent equity interest in Pure Energy Corp., has announced that the first ever non-petroleum gasoline substitute patent has been issued to Princeton University.

On Dec. 16, 1997, the United States Patent and Trademark Office issued a patent to Princeton University for a new, non-petroleum substitute for gasoline called P-series. The patent issued is U.S. Patent No. 5,697,987, and is titled Alternative Fuel.

P-series is a unique blend of ethanol, natural gas liquids and a co-solvent. The fuel, which is non-petroleum and as much as 70 percent from renewable sources, is designed to operate in existing flexible fuel vehicles. It is designed to be cost-competitive with gasoline and to meet the standards set by the Clean Air Act of 1990 and the Energy Policy Act of 1992 (EPACT).

Use of the fuel as an alternative to gasoline will contribute to significant reductions in greenhouse gases, lower tail pipe emissions and greater domestic energy security.

P-series is designed to service the estimated 10 billion gallon per year U.S. fleet market, that by federal mandate is required to use an increasing proportion of alternative fuel vehicles (AFVs), and the nascent consumer AFV market.

Pure Energy holds the exclusive worldwide license to commercialize the alternative fuel. On July 7, 1997, Pure Energy filed a petition with the Department of Energy seeking a rulemaking to designate the P-series as an "Alternative Fuel" under EPACT.

For more information, visit the L.L. Knickerbocker Company website: <www.knickerbocker.com>.

LIFE CYCLE ASSESSMENT OF A BIOMASS GASIFICATION COMBINED-CYCLE POWER SYSTEM

Electric power production from biomass has the potential to make significant contributions to the power mix in the US, and to do so with substantially fewer environmental impacts than current technologies. Using dedicated energy crops for power production will significantly close the carbon cycle, reduce and stabilize feedstock costs, increase the size of biomass power plants, and provide economic benefits to agricultural communities. But to realize these potential contributions, biomass power systems must be competitive on a cost and efficiency basis. Also, a complete picture of how the biomass facility will affect the environment is needed. This requires an analy-

American Oil Chemists Society Publication—The 5th Edition of the *Official Methods and Recommended Practices of the AOCS* is now available. A revised method layout accompanies the 5th Edition, making the "stand-alone" method format easier to follow. Single methods are completely self-contained and may be separated from the *Methods* binder and used without cross-referencing of other methods. The manual contains methodology required for proficiency testing in the Smalley Program, as well as AOCS laboratory certification. Each method has been reviewed by academic, corporate, and government experts to ensure that the most technically advanced methods are presented in the 5th Edition. Reviewers have harmonized the methods with other scientific organizations such as AOAC International, IUPAC International, and ISO. Cost is US $450 plus US $20 postage and handling within the US and $95 postage and handling outside the US. Contact AOCS, P.O. Box 3489, Champaign, IL 61826-3489, fax (217) 351-8091.

Handbook of Electric Power Calculations—The McGraw-Hill Companies are offering the *Handbook of Electric Power Calculations, Second Edition*, which provides 291 worked-out calculation procedures and makes it easy to tackle problems with generators, transmission lines, motors, transformers, load flow, synchronous machines, instrumentation, cogeneration, wiring, circuits, batteries, networks, etc. Each procedure contains only the critical details you need, including clear, concise descriptions of the problem to be solved and numbered calculations steps that lead you to the correct solution. To obtain a copy, contact McGraw-Hill Priority Processing, P.O. Box 182605, Columbus, OH 43272-3032, or call 1-800-2-MCGRAW, or fax (614) 759-3644. Cost is $59.95 plus postage, handling, and local tax. Refer to *Handbook of Electric Power Calculations, Second Edition (057048-5)*.

sis of the entire system from biomass crops through power production.

This report, *Life Cycle Assessment of a Biomass Gasification Combined-Cycle Power System* (Decmeber 1997), details a recently completed life cycle assessment (LCA) of a biomass gasification combined-cycle power system. LCA is a systematic analytical method to identify, evaluate, and help minimize the environmental impacts of a specific process or competing processes. The primary purpose of conducting this life cycle assessment was to answer many of the questions that are raised about biomass power in regard to CO_2 and energy use, and to identify other environmental effects that might become important once such systems are further implemented.

Twenty air, twenty-five water, and seven solid emissions, plus seventeen natural resources and six types of energy were quantified for the system. In keeping with the cradle-to-grave concept of LCA, the energy and material flows of all processes necessary to operate the power plant are included in the assessment. The overall system consists of the production of biomass as a dedicated feedstock crop, its transportation to the power plant, and electricity generation. Upstream processes required for the operation of these sections are also included. Particular attention was paid to studying the net system CO_2 emissions and energy production. Finally, a sensitivity analysis on the results was performed.

This study sets itself apart from other LCAs in that all emissions, energy use, and resource consumption were assessed for each year that the system operates. The benefit of this can be seen by noting that the environment feels not an average value of the effects of this process, but the amount actually produced in a given year. Plant construction and decommissioning were found to have considerable levels of emissions and energy use, albeit for short periods of time compared to the system life. Thus, the average impact from construction and decommissioning is small, and would have been lost in the results if the analysis were not conducted on a yearly basis. For a copy of this report contact the NREL Document Distribution Center at (303) 275-4363. Refer to NREL/TP-430-23076 - DRAFT.

DOE MODULAR POWER SOLICITATION

The U.S. Department of Energy Office of Solar Thermal, Biomass Power, and Hydrogen Technologies will conduct a solicitation for small modular power systems. For purposes of the solicitation, small power is defined as systems in the 5kW to 5MW range. Although most interested in international markets, domestic markets are of interest and are included in the solicitation.

The solicitation will be released in mid-February 1998 from Sandia National Laboratory with proposals due in mid-March 1998. Both Sandia National Laboratory and the National Renewable Energy Laboratory will award contracts from the solicitation.

The solicitation will be conducted in three phases as shown in the table below. Lack of participation in a previous phase will not exclude participation in later phases. For additional information contact Dr. Thomas Mancini, Sandia National Laboratories, Solar Thermal Technology, Department 6216, P.O. Box 5800, Albuquerque, New Mexico 87185-0703, (505) 844-8643, fax (505) 844-7786, email <trmanci@sandia.gov>.

	Funding Available	Cost Sharing Requirement	Project Duration	Anticipated Number of Awards
Phase I-Feasibility Studies	$1,000,000	20%	0.5-years	8-12
Phase II-Proof of Concept	$16,000,000	50%	1.5-2-years	3-5
Phase III-System Integration and Operations in Market Environment	$16,000,000	50%	1.5-2 years	2-3
Information in this table is an estimate and may change based on appropriations				

CALENDAR OF EVENTS

February 26-27, 1998
Albuquerque, New Mexico
National Conference on Ethanol Policy and Marketing
Bryan & Bryan Inc.
tel: (719) 942-4353
email: etoh85@aol.com
website: www.ethanolrfa.org

February 28, 1998
Brownsville, Texas
Crop-Derived Fuels for Ground Transportation
Russel E. Smith
Texas Renewable Energy Industries Association
P.O. Box 16469
Austin, TX 78761-6469
tel: (512) 345-5446
fax: (512) 345-6831
email: r1346@aol.com

March 2-4, 1998
Greensboro, North Carolina
The Third Annual Southeastern Green Building Conference & Exhibition
GB Conference Committee
NCRA
7330 Chapel Hill Rd., Suite 207
Raleigh, NC 27607
tel: (919) 851-8444
fax: (919) 851-6009
email: NCRecycles@aol.com

March 18-22, 1998
St. Louis, Missouri
Hearth Products Association Hearth & Home EXPO '98
Hearth Products Association
1601 North Kent St., Suite 1001
Arlington, VA 22209
tel: (703) 522-0086
fax: (703) 522-0548
website: www.hearthassoc.org

May 3-7, 1998
Gatlinburg, Tennessee
Twentieth Symposium on Biotechnology for Fuels and Chemicals
Dr. Brian H. Davison/Renae Humphrey
ORNL, P.O. Box 2008
Oak Ridge, TN 37831-6226
tel: (423) 241-3810
fax: (423) 574-6442
website:
http://www.ornl.gov/divisions/ctd/ChemDev/Biochemical/20thsymp.htm

May 31-June 3, 1998
Washington, DC
4th National Clean Cities Stakeholders Conference and Exposition
Clean Cities Hotline
9300 Lee Highway
Fairfax, VA 22031-1207
tel: 1-800-224-8437
tel: (703) 934-3068
fax: (703) 934-3183
email: ccities@nrel.gov
website: www.ccities.doe.gov

June 8-11, 1998
Wurzburg, Germany
Biomass for Energy and Industry, 10th European Conf. and Tech. Exhibition
C.A.R.M.E.N.e.V.
Technologiepark 13, D-97222 Rimpar
bei Wurzburg, GERMANY
fax: +49-9365-806955

June 8-11, 1998
Hong Kong
The 9th Global Warming International Conference & Expo
The Global Warming Int'l Center
P.O. Box 5275
Woodridge, IL 60517-0275
tel: 630-910-1551
fax: 630-910-1561

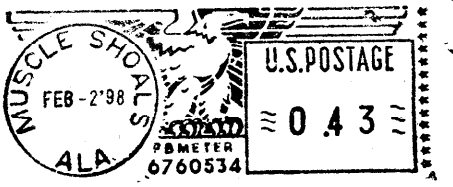
August 2-7, 1998
Boulder, Colorado
27th International Symposium on Combustion
Dr. Donald R. Hardesty
Combustion Rsch. Dept. MS 9052
Sandia National Laboratories
7011 East Avenue
Livermore, CA 94551-0969
tel: (510) 294-2321
fax: (510) 294-1004
email: drharde@sandia.gov
<http://me-www.colorado.edu/27symp>

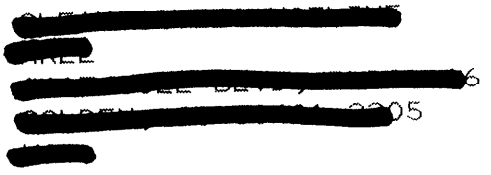
August 23-27, 1998
Boston, Massachusetts
American Chemical Society Division of Fuel Chemistry Symposium on Fuels for the Year 2000 and Beyond
Dr. Steven A. Benson
Univ. of North Dakota
tel: (701) 777-5177
fax: (701) 777-5181
email: sbenson@eerc.und.nodak.edu
Dr. Craig Fairbridge
National Centre for Upgrading Tecdhnology
Alberta, Canada
tel: (403) 987-8618
fax: (403) 987-5349
email: craig.fairbridge@nrcan.gc.ca

September 1-4, 1998
St. Augustine, Trinidad, West Indies
International Symposium and Exhibition , Energy and the Environment
Sr. W.A. Mellowes
Dr. A.C. Pilgrim
Univ. of the West Indies
Office of the Dean
Faculty of Engineering
St. Augustine, Trinidad
tel: (868) 645-3233-9, ext. 2061/ 2503
fax: (868) 662-4414
eamil: enerviro@eng.uwi.tt
website: http://www.uwi.tt/~power/sym/

October 4-8, 1998
Madison, Wisconsin
Bioenergy '98
Fred Kuzel
Great Lakes Regional Biomass Energy Program
35 E. Wacker Drive, Suite 1850
Chicago, IL 60601
tel: 312-407-0177
fax: 312-407-0038
email: fkuzel@cglg.org
website: http://www.cglg.org/projects/biomass/bioenergy98

SERBEP Update
Southeastern Regional Biomass Energy Program
Tennessee Valley Authority, CEB 2A
Reservation Road
P.O. Box 1010
Muscle Shoals, AL 35662-1010
(Non-US Postal Service Zip Code 35661)





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Just a reminder—Each month we receive returned newsletters with no forwarding address available. We are forced to remove these names from our mailing list. If you have moved and wish to keep receiving the *SERBEP Update*, please be sure to send us your new address.

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BioEnergy '98—Expanding Bioenergy Partnerships

8th Biennial Conference

BioEnergy '98 is a premier international event hosted biennially by the U.S. Department of Energy's Regional Biomass Energy Program. The focus of BioEnergy '98 is to build a thriving biomass energy industry through partnerships for energy, the environment, and the economy. BioEnergy '98 will be the first major biomass conference to examine implications from the Kyoto Conference of the Parties meeting on greenhouse gas emissions and other environmental drivers.

Topics include special emphasis on bioenergy mitigation of greenhouse gas emissions, financing issues, innovative and successful bioenergy projects around the world. Other topics include liquid biofuels, electric power production from various feedstocks and technologies, biogas production and utilization, biomass cultivation and harvesting, technical and economic assessments of cropping and production systems, national and international policy issues, market opportunities, and environmental aspects of bioenergy production and use.

BioEnergy '98 will be held at the new Monona Terrace & Convention Center designed by Frank Lloyd Wright in Madison, Wisconsin, October 4-8, 1998, at the start of Energy Awareness Month. The conference is hosted by the Great Lakes Regional Biomass Energy Program. More information, including the call for papers and Trade Show exhibitor application, can be obtained from the Internet at <http://www.cglg.org/bioenergy98> or by contacting Fred Kuzel at (312) 407-0177 or <fkuzel@cglg.org>.

PAPER ABSTRACTS ARE DUE BY FEBRUARY 28, 1998.